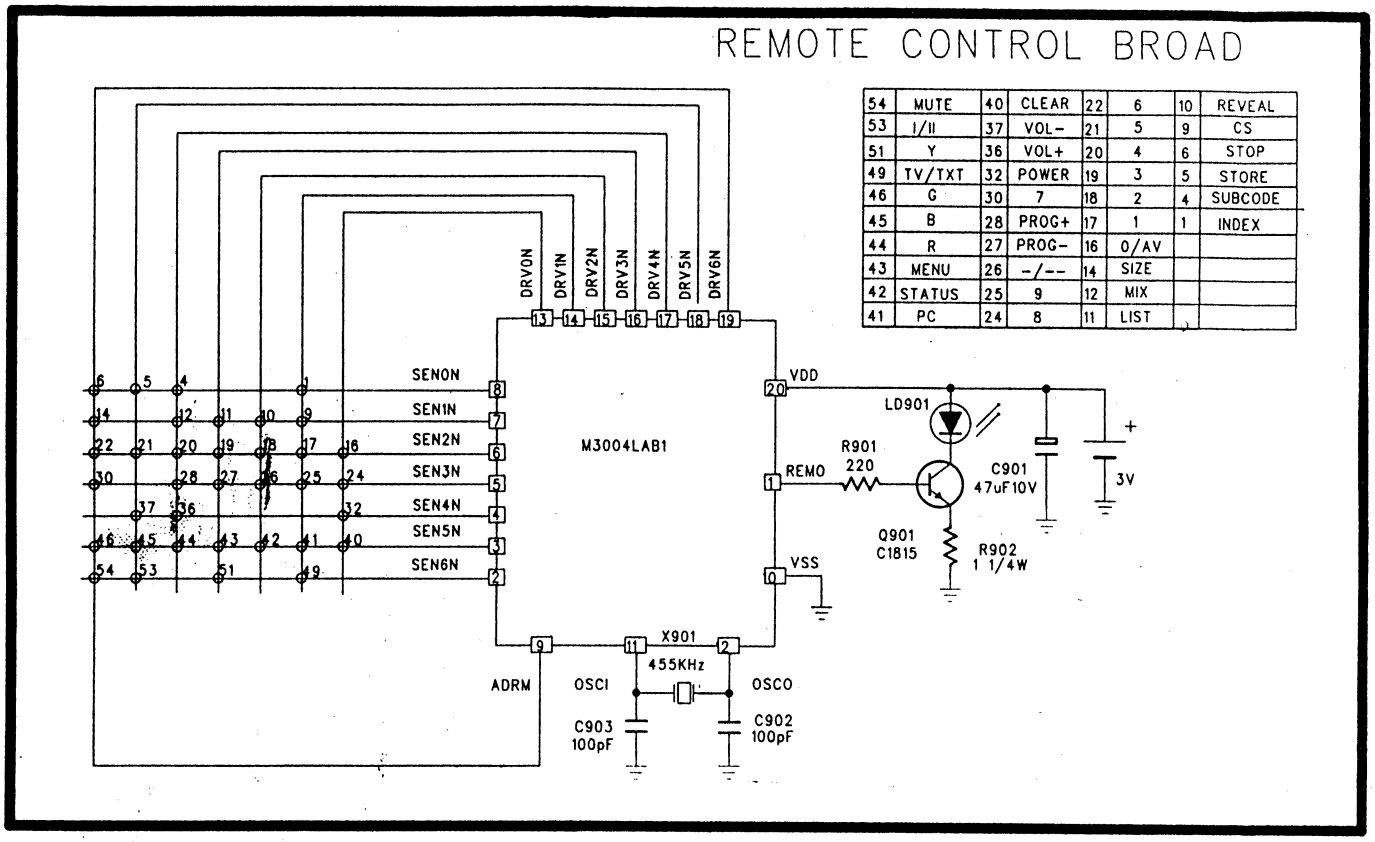
GRAETZ CTV-A63SN

MODEL

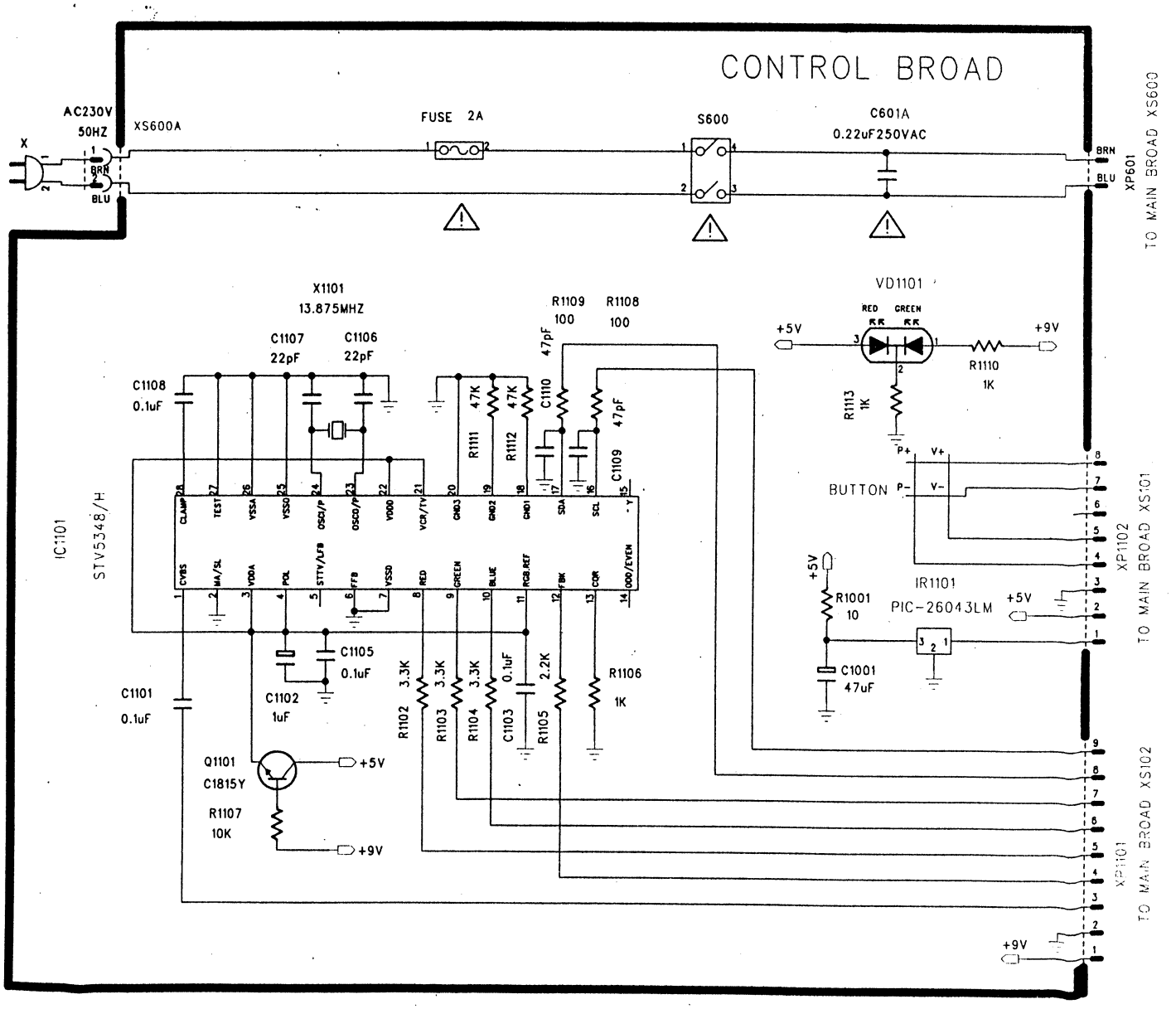
SERVICE MANUAL

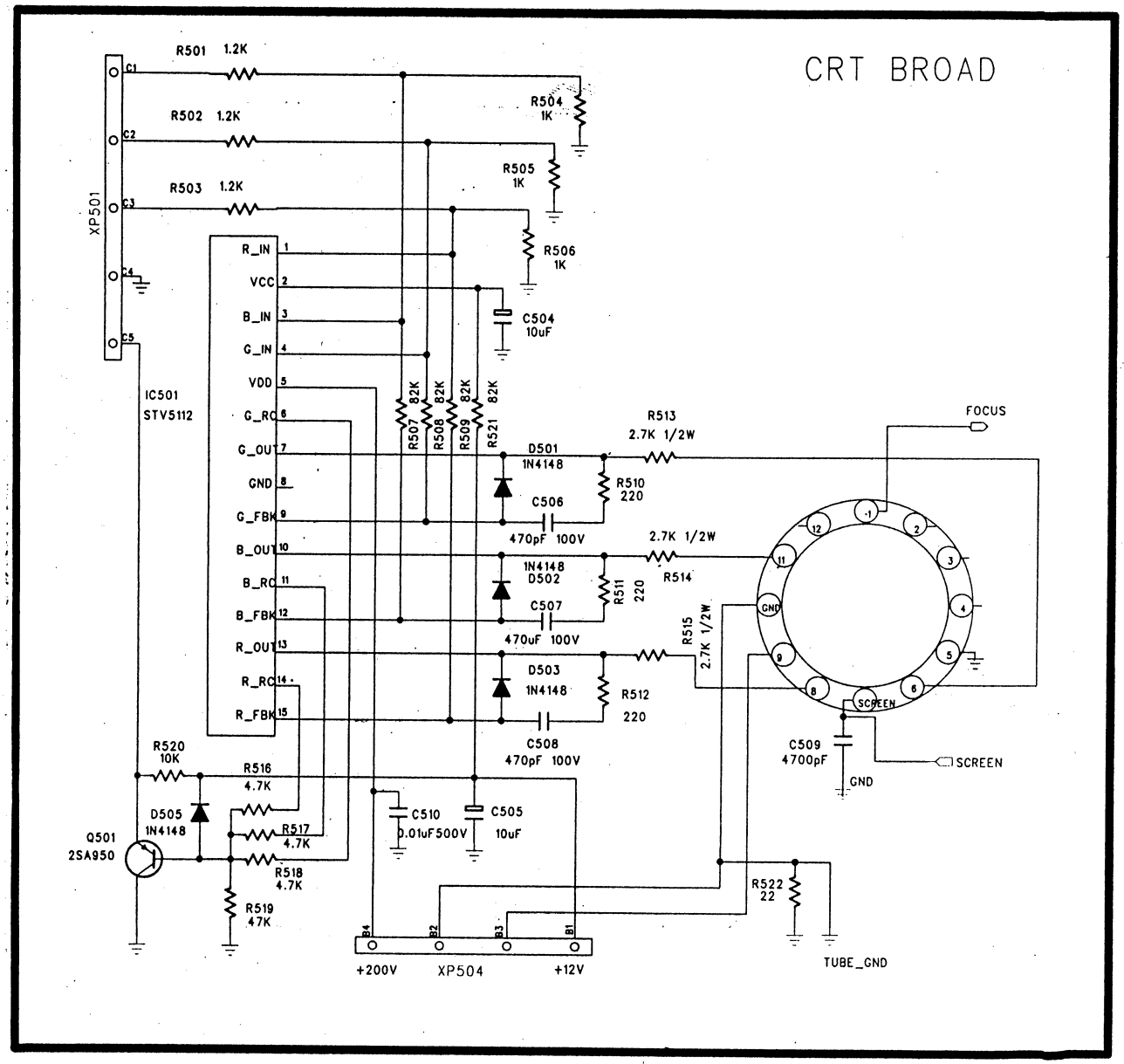
REMOTE CONTROL BROAD



54	MUTE	40	CLEAR	22	6	10	REVEAL
53	I/II	37	VOL-	21	5	9	CS
51	Y	36	VOL+	20	4	6	STOP
49	TV/TXT	32	POWER	19	3	5	STORE
46	G	30	7	18	2	4	SUBCODE
45	B	28	PROG+	17	1	1	INDEX
44	R	27	PROG-	16	0/AV		
43	MENU	26	-/--	14	SIZE		
42	STATUS	25	9	12	MIX		
41	PC	24	8	11	LIST		

CONTROL BROAD



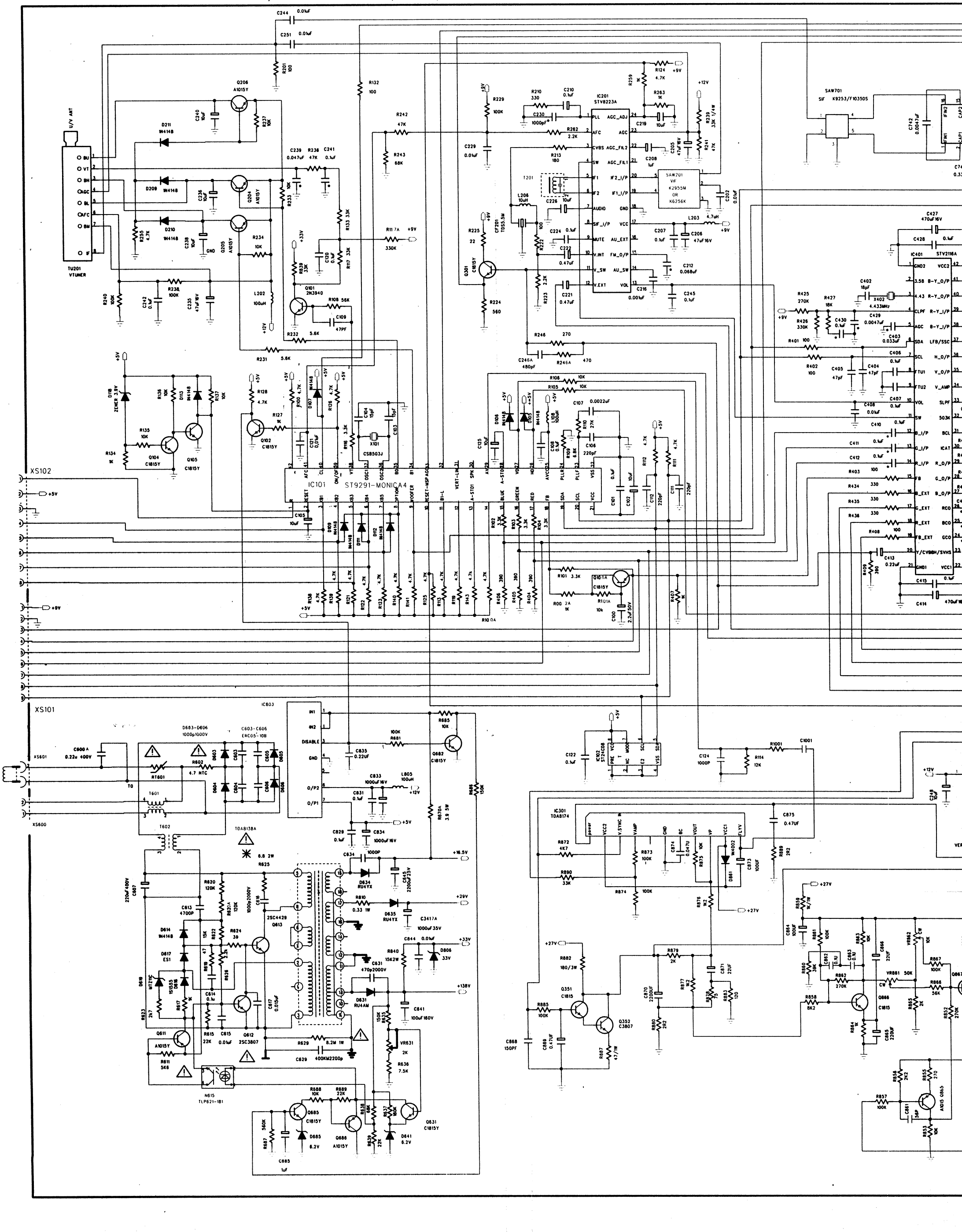

CRT BROAD
XP501
C1
C2
C3
C4
C5
R501 1.2K
R502 1.2K
R503 1.2K
R504 1K
R505 1K
R506 1K
C504 10uF
IC501
STV5112
R_IN 1
VCC 2
B_IN 3
G_IN 4
VDD 5
G_RC 6
G_OUT 7
GND 8
G_FBK 9
B_OUT 10
B_RC 11
B_FBK 12
R_OUT 13
R_RC 14
R_FBK 15
R507 82K
R508 82K
R509 82K
R521 82K
D501 1N4148
C506 470pF 100V
R510 220
R513 2.7K 1/2W
FOCUS
D502 1N4148
C507 470uF 100V
R511 220
R514 2.7K 1/2W
D503 1N4148
C508 470pF 100V
R512 220
R515 2.7K 1/2W
R520 10K
R516 4.7K
D505 1N4148
Q501 2SA950
R517 4.7K
R518 4.7K
R519 47K
C510 0.01uF500V
C505 10uF
C509 4700pF
GND
SCREEN
R522 22
TUBE_GND
B4
B2
B3
B1
+200V
XP504
+12V

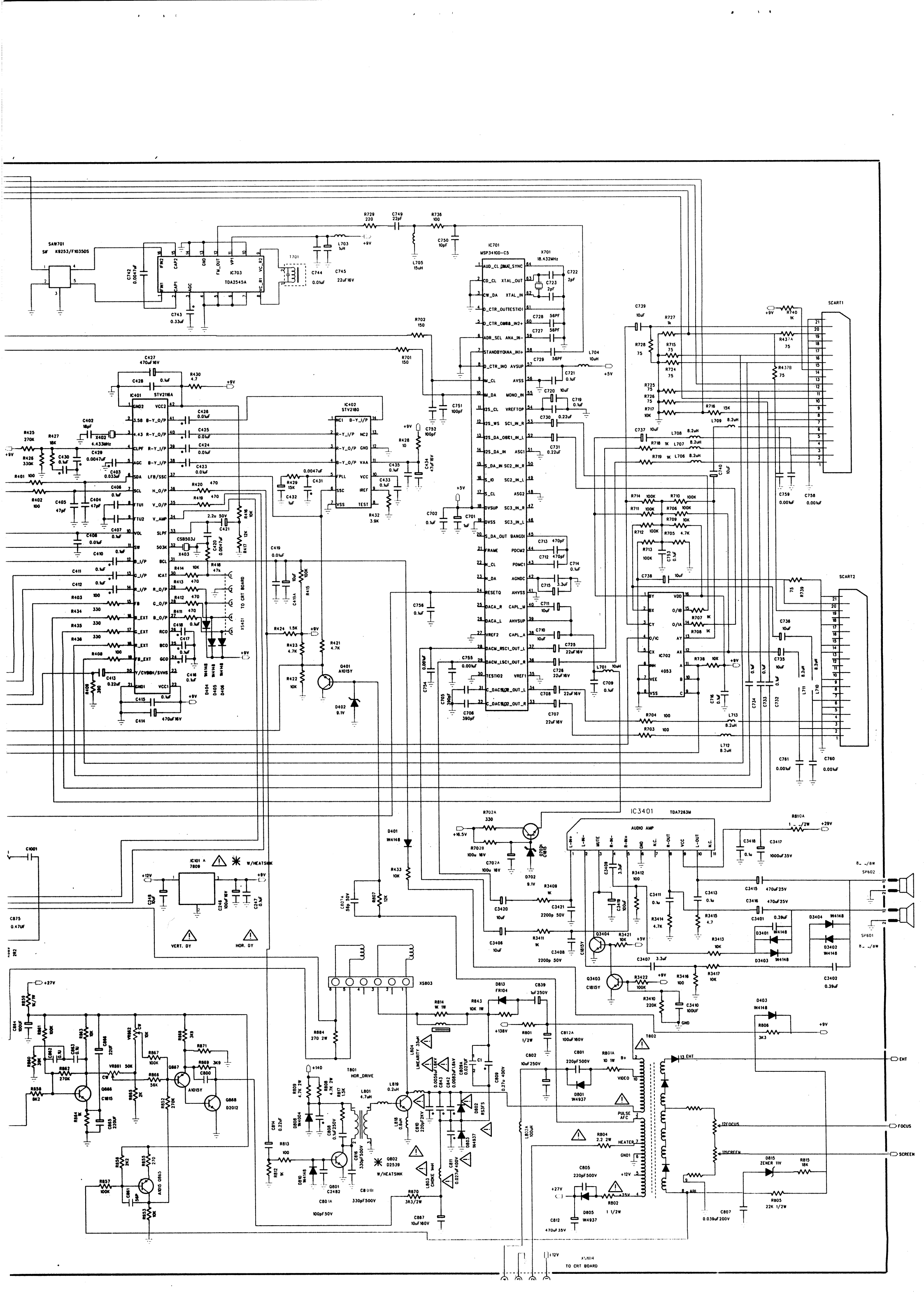
WARTOŚCI NASTAWÓW W SERVICE MODE

Otwieranie SERVICE MODE - nacisnąć równocześnie klawisze Vol.- i Vol. + na klawiaturze lokalnej TV i przytrzymać przez 3 s.

Nr Parametru	Rodzaj parametru **Nazwa**	**Minimum**	**Maximum**	**Normal po zresetowaniu**	Zalecana wartość
0	ARW	0	127	40	
1	Balans B Działo **Czerwone**	0	63	32	
2	Balans B **Czerwone** (Cut-off)	0	63	32	
3	Balans B Działo **Zielone**	0	63	32	
4	Balans B **Zielone** (Cut-off)	0	63	32	
5	Balans B Działo **Niebieskie**	0	63	32	
6	Przesuw **H** (poziomo)	0	63	37	
12	Czerwone (cut-off **SECAM**)	0	63	32	
13	Zielone (Cut-off **SECAM**)	0	63	32	
14	Przesuw **V** (pionowo)	0	31	7	
15	Amplituda	0	127	119	
16	Korekcja S (Liniowość pionowa **V**)	0	15	8	
17	Amplituda H (**Beczka**)	0	31	8	
18	EW Beczka narożniki	0	15	15	
19	EW Trapez	0	31	15	
20	EW Beczka (zależy od typu kineskopu)	0	1	1	0
21	Szerokość	0	63	24	
22	Przesuw OSD **V** (pionowo)	20	46	46	
23	Przesuw OSD **H** (poziomo)	0	32	23	

Zamknięcie (opuszczenie) **SERVICE MODE** - należy wyłączyć TV z sieci (wyłącznikiem sieciowym) lub wcisnąć klawisz CLEAR na pilocie zdalnej regulacji.


TU201 VTUNER
IC101 ST9291-MONICA4
IC201 STV8223A
IC401 STV2116A
IC301 TDA8174
IC803 TDA8138A
SAW701 SIF K9253/F1035DS
SAW201 VIF K2955M OR K6256K
XS101
XS102
XS600
XS601
T601
T602
T201
X101 CSB503J
X402 4.433MHz
N615 TLP621-181
Q206 A1015Y
Q204 A1015Y
Q205 A1015Y
Q101 2N3940
Q102 C1815Y
Q104 C1815Y
Q105 C1815Y
Q301 C1815Y
Q611 A1015Y
Q612 2SC3807
Q685 C1815Y
Q686 A1015Y
Q682 C1815Y
Q631 C1815Y
Q351 C1815
Q352 C3807
Q866 C1815
Q10 0A C1815Y
D211 1N4148
D209 1N4148
D210 1N4148
D118 ZENER 3.9V
D113 1N4148
D107 1N4148
D106 1N4148
D105 1N4148
D109 1N4148
D111 1N4148
D112 1N4148
D614 1N4148
D617 ES1
D619 MTZ11C
D616 1S1555
D634 RU4YX
D635 RU4YX
D631 RU4AM
D806 33V
D861 1N4002
D685 6.2V
D641 6.2V
C3417A 1000uF 35V
U/V ANT
TO
+5V
+9V
+12V
+27V
+33V
+138V
+16.5V
+29V
GND


SAW701
SIF K9253/F10350S
IC703
TDA2545A
T701
IC701
MSP3410D-C5
X701
18.432MHz
IC401
STV2116A
IC402
STV2180
X402
4.433MHz
X403
CSB503J
X5401
TO CRT BOARD
Q401
A1015Y
D402
9.1V
SCART1
SCART2
IC702
4053
IC3401
TDA7263M
AUDIO AMP
IC101 A
7809
W/HEATSINK
VERT. DY
HOR. DY
T801
HOR_DRIVE
Q801
C2482
Q802
D2539
W/HEATSINK
Q866
C1815
A1015Y
Q867
Q868
D2012
T802
D801
1N4937
D802
RS3FS
D803
1N4937
D805
1N4937
D815
ZENER 11V
XS803
XS804
TO CRT BOARD
Q702A
C1815
Q3404
C1815Y
Q3403
C1815Y
SP602
SP601
13 EHT
12FOCUS
11SCREEN
EHT
FOCUS
SCREEN
PULSE AFC
VIDEO
HEATER
B+
+27V
+12V
+9V
+5V
+138V
+16.5V
GND

ALIGNMENT INSTRUCTION

I. Before Adjustment and Maintenance

A. Don't short any two soldering points or connect any component while TV set is power on.
B. Withdraw power plug before maintenance.
C. Safety components (⚠) in accordance with existing requlations. These components must be replaced only with original part.
D. Must warm up the set for 30 minutes or more and degauss CRT thoroughly with demagnetiser coil before alignment.

II. Equipment for Adjustment

a. Pattern Generator (PM5518/5418)
b. Digital Voltmeter (Inner Resistance ≃ 10MOhm)
c. High Voltage Meter
d. Sine Wave Signal Generator (Precision: 10KHz)
f. Demagnetiser
g. DC Regulated Power Supply
h. Oscilloscope
t. Ture RMS AC Digital voltmeter (min. Crest factor 5:1)

III. B+ Alignment

1. Receive standard colour bar signal.
2. Select the "RESET" embody on VIDEO MENU to set controls at normal condition.
3. Connect a digital voltmeter between of C811 and GND.
4. Adjust VR901 to get the voltage value at different mode as follow
   14" 110V ± 0.25V,
   20" 115V ± 0.25V,
   21" 110V ± 0.25V.
   (SEE ATTACHED CONVERSION TABLE OF DIFFERENT CRT FOR DIFFERENT VOLTAGE)

IV. ADJUSTMENT OF VIF VCO

1. Connect output lead of (38.9 ± 0.02MHz, 95-100dBuV without modulation), sine wave signal Generator to the PIF pin and GND of tuner.
2. Connect one channel of the oscilloscope which set DC-INPUT to the pin 41 of IC601, connect other channel of oscilloscope which set AC-INPUT to base of the Q202.
3. Adjust T201 to read out 2.5 ± 0.1V on the DC-settled channel and get stable line on the AC settled channel.

V. Adjustment of RF AGC

1. Receive RF signal (60-62dBuV) with PHILIPS pattern at VHF-HIGH BAND
2. Adjust RF AGC control (VR201) until noise is disappeared.

VI. SERVICE MODE

A service menu facilitates TV chassis alignment and repair in the field. Press the volume-up and volume-down buttons on the TV set front panel simultaneously above 2 seconds, the set will display the service mode menu on the screen.

NOTE: On the service mode the set can power on automatically and bypass the standby mode, it use for aging operation on mass production.
Two ways to switch back to normal TV reception, One is using clear button, and the another way is pressing and hold on program up or down on local set and then push main power switch to turn TV off and on.
The current channel number is displayed on the top left corner. The decimal value on the center of the second line is the parameter and the following is value. The Channel-up and Channel down buttons select parameters while Volume-up and Volume-down buttons adjust the current value of parameters.
When parameters are modified, the corresponding EEPROM locations are updated as displayed automatically.

REPLACE OF EEPROM: The MCU will automatic in itialization the EEPROM contents when the blank new EEPROM is changed.

1. Change of blank new EEPROM.
2. Connect the main supply.
3. Power ON tne main Switch.
4. Press the remote stand-by button or channel-up button on the front panel.
5. Wait 6 seconds and the TV will turn on automatically. (The MCU will blocked the TV set 6 seconds for EEPROM intialization).

The service mode OSD menu will displayed on screen. Adjust the parameter as requested.

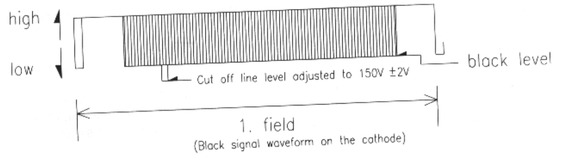
Parameter	Description	Device	Register	Minimum	Maximum
1	Red Gain	STV2112B/2116	3	0	63
2	Red cut-off (PAL)	STV2112B/2116	4	0	63
3	Green Gain	STV2112B/2116	5	0	63
4	Green cut-off (PAL)	STV2112B/2116	6	0	63
5	Blue Gain	STV2112B/2116	7	0	63
6	Horizontal position	STV2112B/2116	11	0	63
7	Vertical position	STV2112B/2116	13	0	7
8	Vertical amplitude (50Hz)	STV2112B/2116	12	0	63
9	Vertical amplitude (60Hz)	STV2112B/2116	12	0	63
12	Red cut-off (SECAM)	STV2112B/2116	4	0	63
13	Green cut-off (SECAM)	STV2112B/2116	6	0	63
22	NTSC Horizontal position	STV2112B/2116	11	0	63
23	NTSC vertical position	STV2112B/2116	13	0	7
24	OSD vertical position	STV2112B/2116		20	46
25	OSD horizontal position	STV2112B/2116		0	32

The following adjust ments are in the service mode

A. Adjustment For White Balance

1. Receive Black-White pattern RF signal.
2. Select "RESET" in VIDEO MENU to set Contrast and Brightness at normal position.
3. Enter service mode. (Press the volume up and down button on the front panel simultaneously).
4. Set parameters of 2,4,12,13 to "32" and parameters, 1,3,5 to "63"
5. SCREEN ADJUSTMENT.
   Receive the PAL black pattern.
   Find out the highest cut off line level between the pin 9. 12. 15 of IC501 and connect the probe of oscilloscope on the highest cathode.

(a) For production use only
Adjust SCREEN potentiometer to have 150V ± 2V on the cut-off lines (line 23-24-25 in 50Hz).



(b) For service use only
Adjust SCREEN potentiometer to have 160V +/-2V using the bleak level (for test line not available).

6. Receive the pattern "Red" plus "colour bar" from pattern generator PM5518 (or PM15418).
7. Change the parameter 5 to value "45" and parameters 1 and 3 to value "32".
8. Adjust the values of G-cutoff and R-cutoff and R-Gain, G-Gain separately to make the dark (5-10 cd/m^2) and bright (100 cd/m^2) area to white.
9. Repeat above step 7, until both bright area and dark area meet white balance.
   NOTE: x=0.295±0.015, y=0.300±0.015 (for NOKIA series only).

B. HORIZONTAL AND VERTICAL POSITION ADJUSTMENT

1. Receive the Philips pattern signal (PAL or SECAM).
2. Select the parameter 6 "Horizontal position" and adjust the horizontal position of the pattern for center.
3. Select the parameter 7 "Vertical position" and adjust the vertical position of pattern for center.
4. Receive the Philips pattern signal (NTSC).
5. Select the parameter 22 "Horizontal position" and adjust the horizontal position of the pattern for center.
6. Select the parameter 23 "Vertical position" and adjust the vertical position of pattern for center.

C. VERTICAL AMPLITUDE ADJUSTMENT

1. Receive the Philips pattern signal (PAL or SECAM).
2. Change the parameter 8 "Vertical amplitude" to slightly overscan the screen.
3. Receive the pattern signal of NTSC.
4. Change the parameter 9 "Vertical amplitude (NTSC)" to slightly overscan the screen.

D. OSD POSITION ADJUSTMENT

1. Change the parameter 24 and 25 "OSD Vertical position and OSD Horizontal position" to make the arrows appear at four corner and at the center of Hor. And vertical position.

VII. Adjust for FOCUS

1. Select the "RESET" in the VIDEO MENU to set controls at normal position.
2. Adjust knob 'FOCUS' on FBT (DST) to make the picture on the screen to be the most distinct.

VIII. TEST Heater Voltage

The range of Heater Voltage must be 6~6.5Vrms when the pattern on the screen from full white change to full dark.
Note: Use true RMS AC Digital Voltmeter (min. Crest factor 5:1)

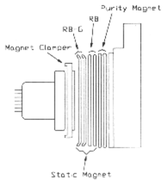
IX. COLOUR PURITY ADJUSTMENT

BEFORE ANY ADJUSTMENTS DESCRIBED BELOW ARE ATTEMPTED, V-HIGH, B+ VOLTAGE AND FOCUSING ADJUSTMENT MUST BE COMPLETED.

1. Place the TV receiver facing NORTH or SOUTH.
2. Plug in TV receiver and turn it on.
3. Operate the TV receiver over 30 minutes.
4. Fully degauss the TV receiver by using the external degaussing coil.
5. Receive a "crosshatch plus circle" pattern and adjust the static convergence control roughly.
6. Loose the clamp screw of the deflection yoke and pull the deflection yoke towards you.
7. Adjust the purity magnets so that green field is obtained at the center of the screen.
8. Slowly push the deflection yoke toward CRT and set it where a uniform green field is obtained.
9. Tighten the clamp screw of the deflection yoke.

X. CONVERGENCE ADJUSTMENT

1. Receive a dotted pattern.
2. Unfix the convergence magnet clamper and align red with blue dots at the center of the screen by rotating (R,B) static convergence magnets.
3. Align Red/Blue with green dots at the center of the screen by rotating (RB-G) static convergence magnet.
4. Fix the convergence magnets by turning the clamper.
5. Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain the good overall convergence.
6. Fix the deflection yoke by wedges.
7. If purity error is found, follow "PURITY ADJUSTMENT" instructions.



XI. APS (Automatic Programming System) Function SETUP

1. Power on the TV set.
2. Press the APS: Button of the remote handset. The TV set will switch to standby mode automatically. The APS is already set.
3. Switch off the Main Switch.

NOTE: The APS switch is special made by the service center which is not included at the standard user remote control.
The TV set will display "APS ACTIVE" during the next time turn on. It will warm up around 1 minute and then search all the program. The location of the APS button is located at keypad number 22.